



WHITE HORSE CONTRACTORS

SOIL AND WATER ENGINEERING FOR SPORT LANDSCAPE AND ENVIRONMENT

SPORTS FIELD CONSTRUCTION SPECIFICATION

Client: ALP

Site: Shinfield Pavilion – Northern Pitches

Address: Hyde End Road, Shinfield, RG2 9ES

Planning Ref:

Job Code: S22-075

Title: Sports Field Construction Specification

Revision No: 04

Prepared by: Dr James Welsh

Reviewed by:

Status: Issued

Date: 28th July 2025

NATURAL & HYBRID SPORTS TURF • LANDSCAPING & CIVIL ENGINEERING • LAND DRAINAGE
PIPELINES • WATER & ENVIRONMENTAL ENGINEERING • EQUESTRIAN & AGRICULTURAL SERVICES

Head Office The Stables, Stephen's Yard, Enborne, Newbury, Berkshire RG20 0HA

T 01865 736 272

E whc@whitehorsecontractors.co.uk
www.whitehorsecontractors.co.uk



Contents

1. PURPOSE, DESIGN RATIONALE AND SCOPE OF SCHEME	4
1.1. Purpose	4
1.2. Design rationale	5
1.3. General scope of works	6
1.4. Schedule of Drawings.....	7
2. DESIGN, CONSTRUCTION & PERFORMANCE STANDARDS.....	8
2.1. DESIGN & CONSTRUCTION STANDARDS.....	8
2.2. PERFORMANCE STANDARDS	8
3. SPECIFICATION.....	9
3.1 Preliminaries	9
3.2 Earthworks – Natural Turf Pitch Areas	10
3.3 Drainage.....	13
3.4 Final Cultivations & Seeding [Sports Field]	16
3.5 General Reinstatement.....	18
3.6 12-Months Maintenance [From Seeding].....	19
3.7 Performance Testing at Completion.....	20
4. CONTACT DETAILS	21

Schedule of revisions

Rev	Date	Details	Author	Reviewer
00	05.10.22	First Issue	JPW	
01	06.10.22	Updated drawing references.	JPW	
02	18.10.22	Updated drawing references.	JPW	
03	11.10.23	Updated Layout and Drawings References	JPW	
04	28.07.25	Updated Layout and Drawing References	JPW	

1. PURPOSE, DESIGN RATIONALE AND SCOPE OF SCHEME

1.1. Purpose

It is proposed to construct a new natural turf sports facility on former agricultural land at High Copse Common, Shinfield, Reading as part of a wider residential development. The area is currently laid down to self-set grassland. It is proposed that the new sports field development will accommodate the following formal facilities (please refer to Figure 1 for proposed layout):

- 2 Nr. Youth U13/U14 Football Pitches (11 v 11; each 82 m x 50 m + 3 m runoffs).

It is the purpose of this scheme to construct the natural turf facilities detailed above to meet the "Good" Performance Quality Standard (Ref: The GMA Grounds Management Framework). The pitches will be constructed using a Sport England Type 6 (Ref: Sport England DGN "Natural Turf for Sport", Part B p.22) drainage methodology incorporating comprising lateral drains in combination with sand bands.

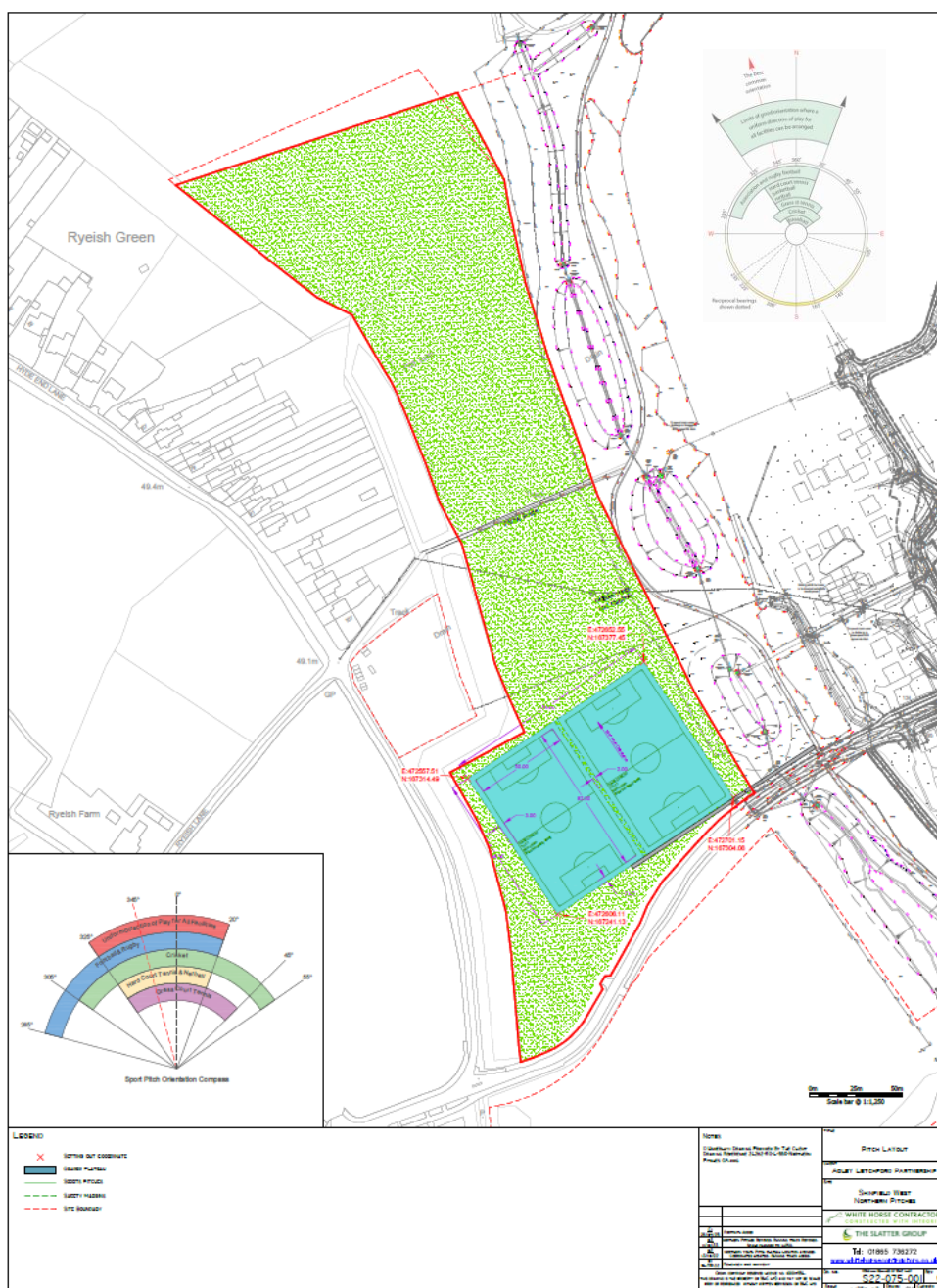


Figure 1. Proposed Sports Pitch Layout [Drawing Ref: S22-075-001-C1]

1.2. Design rationale

The specification proposed in this document is based on the findings from the site investigation and report prepared by White Horse Contractors Limited (Ref: S22-075 Condition Survey of Land for Proposed Sports Pitches. 05.10.22). The executive summary from this report is presented below:

- i. White Horse Contractors Ltd has been commissioned by ALP Ltd, to undertake a condition survey of former agricultural land at High Copse Common, Shinfield West where it is proposed to construct a new sports field.
- ii. The proposed natural turf sports field could potentially accommodate the following facilities: 2 No. U13/U14 Youth Football Pitches.
- iii. The principal issues that could affect the quality of the proposed sports pitches can be summarised as follows:
 - a. The indigenous topsoil and subsoil are susceptible to mechanical damage and compaction due to the high sand content and low clay content. *In-situ* soakage tests (undertaken by RPS) proved the ground to be slowly permeable. In the absence of drainage, it is likely that infiltration rates will be < 5 mm / hour and so will not achieve the Performance Quality Standards (PQS) stipulated by Sport England and will limit the usage during the winter months.
 - b. The stone content of the indigenous topsoil is excessive.
 - c. The existing surface gradients in sections of the site are excessive for formal sport (>1.25% along the proposed line of play) whilst, in other areas, gradients are too shallow which could prevent efficient water movement across the pitch surfaces.
 - d. The existing surface vegetation is unsuitable for sports use.
- iv. To address these deficiencies, the following programme of works is suggested:
 - a. Undertake an earthworks exercise to optimise site gradients for sports use. This will require site clearance, topsoil strip, cut and fill earthworks within the subsoil, and topsoil replacement.
 - b. Screen the site-won topsoil through a rotary screener to remove over-sized stones.
 - c. Ameliorate the topsoil by adding medium/fine sand (30 mm depth) and by placing a 50 mm depth rootzone (80/20 sand/soil mix) carpet to provide further stone mitigation.
 - d. Install a surface bypass drainage scheme (Sport England Type 6) comprising a primary lateral drain network at 5 m centres in combination with sand slit secondary drainage. It is proposed that the drainage scheme can discharge into the existing attenuation basin that forms part of the site wide drainage infrastructure.
 - e. Subject to proving the viability of the existing borehole located adjacent to High Copse Farm, consider the installation of a manual irrigation system to serve the pitch area.
 - f. In addition to these works, the site will be cultivated, fertilised, and seeded and then maintained for a period of 12-months prior to first use.
- v. Based on Sport England guidance (Ref: Sport England Design Guidance Note "Natural Turf for Sport"), in its current, undrained state it is anticipated that the pitches may only sustain

up to 2 hours of use per week on average without causing damage to the grass sward or soil structure. Usage greater than this may cause excessive wear and tear to the playing surfaces. Clearly, this will depend on rainfall patterns during the winter playing season. If the pitches were to be drained, e.g., a Sport England Type 6 drainage comprising lateral drains in combination with sand bands, reliable winter season usage should increase to approx. 3 – 6 hours of use per week for seniors or approx. 50% more than this for under 15's on average including training sessions and other informal usage.

1.3. General scope of works

The scope of works can be summarised as follows:

Enabling Works

- Mobilisation
- Erect temporary security fencing / delineate root protection and main river buffer zones.
- Surveying and setting out
- Establish welfare facilities.
- Establish site compound and lay-down area.

Earthworks

- Site clearance, including removing existing vegetation, total herbicide application, and disc cultivation to break-up the surface ready for stripping topsoil.
- Strip topsoil (typically 300 to 400 mm thickness) and set-aside in a temporary stockpile for re-use.
- Bulk earthworks (net requirement for fill of 3,562 m³ in the solid) in the subsoil to achieve uniformly graded plateaux (please refer to Drawing S22-075-002-P4 for details). Embankments to be no steeper than 1:3, but generally to be 1:10.
- Screen topsoil to remove over-sized stone using a Trommel Screener or similar.
- Replace screened topsoil to approximately 300 mm firmed depth.
- Grade topsoil to achieve specified tolerances for surface level uniformity.
- If necessary to control any remaining sharp-edged stone, supply and place a 50 mm depth Rootzone (80/20 sand/soil mix) capping layer following secondary drainage.

Sports field drainage [Sport England Type 6]

- Installation of main drainage and connection to site wide outfalls (existing attenuation basins).
- Installation of Collector and Carrier drains.
- Installation of cut-off drains.
- Installation of primary pipe drainage scheme (80 mm dia. perf. land drainage pipe @ 5 m centres).
- Installation of secondary drainage scheme (TopDrain Sand Slits; excavated trenches 40 mm wide x 200 mm deep backfilled with sand) at 500 mm centres.
- Drainage arisings to be retained on-site to form the landscaping area in shaped bunds.

Cultivations & Seeding

- Following the installation of the primary drainage scheme, 30 mm depth of sand shall be applied and incorporated to improve topsoil quality. Following the installation of the secondary drainage scheme, a rootzone carpet shall be placed (if necessary). Finally, the sports field area shall be lightly cultivated, fertilised, and seeded.

Initial agronomic maintenance post construction [12-months from seeding]

- Grass cutting (30 cuts).
- Fertilisation (4 applications).
- Compaction Relief / Aeration (Verti-drain x 2).
- Sand topdressing (1 x 8 mm depth application).
- Overseeding.
- Selective herbicide application (if necessary).
- Contact fungicide application (if necessary).
- Topping-up drain lines and sand slits should settlement occur.

Performance Testing at Completion

- Commission a Performance Quality Standard Assessment by an approved independent test house to confirm that the structural quality of the constructed pitches meets the standards set out in Table 3.

1.4. Schedule of Drawings

Table 1. Drawing Schedule [WHC Design]

Dr. No.	Title	Scale
S22-075-001-C1	Pitch Layout	1:1,250 @ A2
S22-075-002-C2	Existing and Proposed Levels.	1:500 @ A2
S22-075-003-C3	Cross sections.	Varies @ A2
S22-075-004-C4	Isopachytes.	1:500 @ A2
S22-075-005-C5	Drainage Design.	1:500 @ A2

2. DESIGN, CONSTRUCTION & PERFORMANCE STANDARDS

This section sets out the design and construction standards employed for this scheme together with the performance standards that the completed sports surfaces will achieve.

2.1. DESIGN & CONSTRUCTION STANDARDS

Natural turf pitch areas will be designed and constructed in accordance with:

- Code of Practice for the Design, Construction, and Improvement of Natural Turf. 2010. SAPCA.
- Design Guidance Note "Natural Turf for Sport." 2011. Sport England.
- British Turf & Landscape Irrigation Association (BTLIA).
- ECB Performance Standards for Non-Turf Cricket Pitches Intended for Outdoor Use [TS6]

2.2. PERFORMANCE STANDARDS

The following table sets out the Performance Quality Standards (PQS) to which the sports pitches will adhere once completed. These have been developed by The Grounds Management Association (The GMA) formerly the IOG. With respect to the natural turf pitches, The GMA have set out five categories for sports pitch performance namely: Basic, Good, Advanced, High, and Elite standards. There is also a sixth category of Poor. It should be noted that these are DRAFT standards at present. The PQS are summarised in the following table (Table 3). For the purposes of this scheme, the winter sports pitches will be constructed to meet (or exceed) the **"Good"** standard when assessed at the start of the playing season.

Table 3. Winter Sports Pitches – Structural Quality	Quality Standard
	"GOOD"
Length of grass / cutting height	45 - 60 mm
Total ground cover	≥75%
Total grass cover	≥70%
Desirable grasses	≥70%
Undesirable grasses	≤15%
Bare areas	≤25%
Weeds	≤10%
Pests & Diseases	≤7%
Thatch	≤7 mm
Root depth	≥85 mm
Rootzone Profile	≥125 mm
Compaction (Peak soil strength)	≤200
Infiltration rate	≥5 mm / hr
Soil pH	5.5 – 8.0
Soil nutrient levels P ₂ O ₅	Index 3
Soil nutrient level K ₂ O	Index 3
Evenness using a 3 m straight edge	± 20 mm
Gradient: Length ways (Based on Sport England PQS)	≤1:80
Gradient: Across the pitch (Based on Sport England PQS)	≤1:50

3. SPECIFICATION

3.1 Preliminaries

1 Preliminaries

- 1.1 Allow for compliance with all conditions of contract.
- 1.2 Allow for compliance with all relevant Health & Safety legislation including the Construction, Design and Management (CDM) Regulations.
- 1.3 Allow for managing and supervising the works
- 1.4 Allow for the mobilisation and subsequent removal of all plant and machinery required to complete the specified works.
- 1.5 Allow for the establishment of a site compound and subsequent removal at the end of the contract period.
- 1.6 Allow for the provision, erection, maintenance, and removal of all protection measures required to safeguard the working area(s), persons, buildings, trees, machinery, and materials stockpiles for the duration of the works.
- 1.7 Allow for the provision of welfare facilities for site operatives.
- 1.8 Allow to maintain the highway in a safe and clean condition.
- 1.9 Allow for preparation of O & M manuals and as-laid plans for all installed services.

3.2 Earthworks – Natural Turf Pitch Areas

1 Notes on Soil Handling

- 1.1 Soils shall only be handled when at, or below, their lower plastic limit. To establish whether the soil is in the correct state to be handled, the Casagrande method can be employed. Casagrande defined the plastic limit as the water content at which a thread of soil just crumbles when it is carefully rolled out to a diameter of 3 mm (1/8"). If the thread crumbles at diameter smaller than 3 mm, the soil is too wet. If the thread crumbles at a diameter greater than 3 mm, the soil is drier than the plastic limit and can be worked.
- 1.2 Use machinery fitted with LGP tyres or tracks.
- 1.3 Avoid trafficking plant and machinery on exposed topsoil (either before stripping or after replacement).
- 1.4 Following rainfall, a further soil test to confirm that the soils are at or below their lower plastic limit should be undertaken before works resume.
- 1.5 For further information and guidance, please refer to the DEFRA publication "Construction Code of Practice for the Sustainable Use of Soils on Construction Sites" Ref: PB13298. Dated: September 2009.

2 Setting out

- 2.1 Allow for setting out the working area based on the Contract Drawings and establish control points.

3 Site clearance

- 3.1 Flail mow, chop and spread existing vegetation using an agricultural tractor fitted with LGP tyres and a hammer-type flail mower.
- 3.2 Supply and apply an approved, systemic, non-residual total herbicide in accordance with the manufacturer's instructions and an appropriate COSHH assessment by qualified personnel. A period of 7 to 14 days shall elapse between spraying and flail mowing to allow sufficient time for the vegetation to senesce. A second application of total herbicide may be required just prior to cultivation to ensure complete vegetation control.
- 3.3 Cultivate to break-up and loosen the topsoil to create a friable tilth for stripping using a tractor fitted with LGP tyres and a rotavator or power harrow.

4 Topsoil Strip

- 4.1 Strip (nominally) 400 mm depth topsoil and remove to temporary stockpile. This can be undertaken using a combination of bull dozers and tracked excavators fitted with wide LGP tracks loading into wheeled dumpers on LGP tyres. Dump trucks shall only run-on subsoil. They must not run-on unstripped topsoil areas.
- 4.2 Only true topsoil shall be stripped, and this shall not be contaminated with subsoil.

4.3 The stockpiles shall be formed as follows:

- Dump trucks shall reverse-in and deposit topsoil at the furthest end of the stockpile area and work their way forward avoiding trafficking on the stockpiled material.
- An excavator shall receive the topsoil and form the stockpile to a height no greater than 3 m. The top and sides of the stockpile shall be shaped to shed water.
- The topsoil shall be tracked-in to resist infiltration of rainwater.

5 Earthworks

5.1 Earthworks shall only be carried out when the soil is below its plastic limit.

5.2 Undertake Fill Earthworks to form the new formation surface for the grass pitches.

The additional fill material required to achieve the proposed levels (approx. 5,572 m³ in the solid) will be provided by the Employer and will be derived from subsoil excavated in other parts of the development. The subsoil shall be tested to BS 8601:2013 to confirm suitability.

Fill material shall be placed in layers no more than 250 mm thick and compacted using a flat roller with vibratory action (if non-cohesive fill) or a sheep's foot roller with no vibration (if cohesive fill). Undertake a sufficient number of passes to minimise any future differential settlement. This work should be undertaken using equipment fitted with either laser or GPS machine control to ensure design levels and tolerances are achieved. The machinery shall be fitted with LGP tyres or tracks as appropriate.

5.3 Proof roll formation surface to confirm compactive state. Excavate and re-pack soft spots as required.

5.4 Trim formation surface using laser/GPS controlled equipment to precise design levels. As a summary, the following construction depths are anticipated:

- Grass Sports Field 300 mm topsoil depth

There shall be no deviations > 30 mm beneath a 3 m straight edge once completed.

5.5 The completed formation surface shall form a smooth transition with adjacent areas of the site. There shall be no slopes greater than 1:3 but generally to be 1:10 where space permits.

5.6 The resulting cuttings and embankments shall be trimmed to the appropriate gradient with even contours.

5.7 Decompaction. The subsoil shall be de-compacted following topsoil replacement and the installation of the primary drainage scheme. See Section 3.4 Item 1.2.

6 Topsoil Screening

- 6.1 The stripped topsoil shall be screened using a Trommel screener (or equivalent) fitted with (nominal) 15 mm mesh size to remove the majority of sharp-edged and over-sized stones from the topsoil. It is assumed that reject material could be approximately 25% of the overall screened volume.
- 6.2 Topsoil may need to be run through the screening plant twice to maximise the production of usable topsoil and minimise reject material.
- 6.3 Reject material (stones and soil clods) shall be retained on-site and utilised to form bunds or mounding in the landscaped areas.
- 6.4 The screened topsoil shall be stockpiled (if necessary) prior to spreading using the same methodology as Item 4.3.

7 Topsoiling [Prior to Drainage Installation]

- 7.1 Load, haul and spread screened topsoil across the grass sports field development area in a single layer with minimal trafficking using equipment (Dumpers, Excavators and CAT D6 Dozers) fitted with LGP tyres/tracks and laser/GPS grade control as required. Consolidated topsoil depth to be 300 mm everywhere.

Topsoil shall be loaded from the stockpile using an excavator sitting on top of the topsoil loading dump trucks. The excavator will reduce the stockpile to original ground level before moving back to the next section. The dump trucks shall not run on the stockpiled topsoil
- 7.2 Grade topsoil to specified tolerances of no more than 10 mm deviation beneath a 2 m straight edge.
- 7.3 If necessary, undertake a stone burying operation using a stone burier to control any remaining oversized (>15 mm) stone within the upper 75 mm depth of the soil profile. This shall be undertaken using a tractor fitted with LGP tyres and stone burying implement.
- 7.4 Roll to firm surface prior to installation of land drainage.

3.3 Drainage

1 Setting out

- 1.1 Allow for setting out the working area based on the Contract Drawings.

2 Primary Drainage

2.1 Excavation of drainage trenches

- 2.1.1 Trenching in wet conditions should be avoided to prevent structural damage to the subsoil and smearing of the trench bottom and sides.
- 2.1.2 Trenching shall commence at the outfall and work up-stream adjusting for grade and depth as required.
- 2.1.3 All trenches shall be excavated using tracked chain trenching machinery fitted with automatic laser or GPS grade control. Where trenching is undertaken using an excavator (e.g., for pipes > 160 mm diameter) then the level along the line of the trench shall be checked using a laser and staff to confirm the grade.
- 2.1.4 Trench bases shall be smooth and shaped to securely bed the pipes. Trench widths shall be adjusted to accommodate the outside diameter of the pipe.
- 2.1.5 Side elevators shall be fitted to the trenching machinery to convey the arising's to suitable dumpers or trailers to remove the excavated material to a tip on-site.
- 2.1.6 The drainage arising's shall be removed to a stockpile on-site in an agreed location.
- 2.1.7 Any existing drains encountered are to be marked so that they can be connected into the new system if considered viable.

2.2 Dimensions of drainage trenches

- 2.2.1 Lateral drains [80 mm O.D. perforated plastic land drainage pipe].
 - Depth: ≥ 0.450 m below finished ground level.
 - Width: ≤ 0.150 m.
 - Gradient: Uniform grade at natural fall of land but not less than 0.50%.
 - Spacing: 5.000 m centres.
- 2.2.2 Cut-off drains [100 mm O.D. perforated plastic land drainage pipe].
 - Depth: ≥ 0.550 m below finished ground level.
 - Width: ≤ 0.175 m.
 - Gradient: Uniform grade at natural fall of land but not less than 0.50%.
- 2.2.3 Collector drain [160 mm O.D. perforated plastic land drainage pipe].
 - Depth Varies: 0.55 to 0.80 m below finished ground level.
 - Width: ≤ 0.275 m.
 - Gradient: Engineer gradient at not less than 0.50%.
- 2.2.4 Main drain [150 mm I.D. sealed, twin-wall drainage pipe].
 - Depth: ≥ 0.850 m below finished ground level.
 - Width: ≤ 0.275 m.
 - Gradient: Uniform grade at natural fall of land but not less than 0.75%.

2.3 Materials Specification

2.3.1 Drainage pipes.

- The pipe shall be perforated corrugated plastic corresponding to BS 4962 (1989). There should be no damage to the pipe. Upper ends of drain runs shall be capped to prevent ingress of soil or animals.
- All pipes shall be BSI kite marked to confirm compliance with the relevant standards.

2.3.2 Plastic fittings.

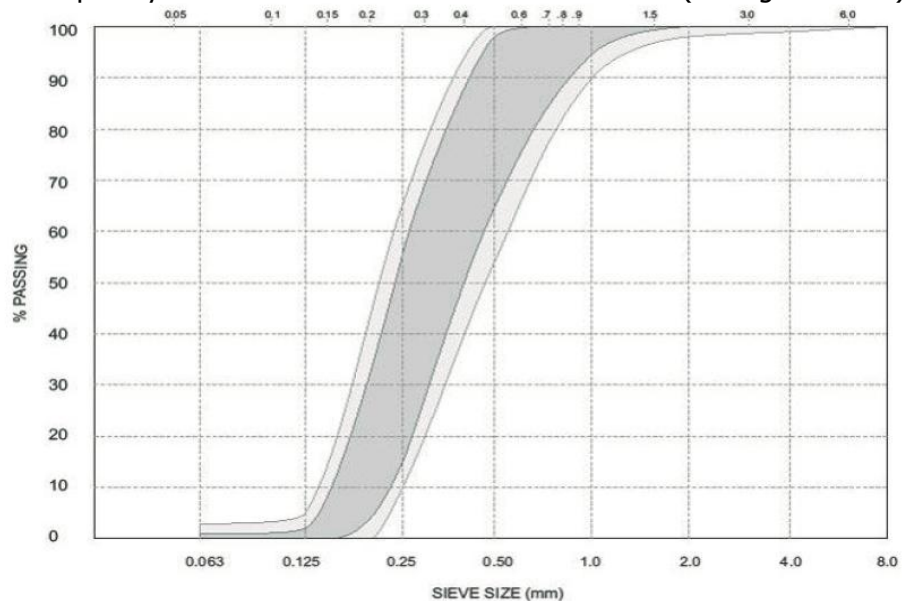
- All fittings to be compliant with BS4962 (1989).

2.3.3 Granular backfill for Lateral & Collector drains.

- The material shall be clean, hard, gravel or chippings (e.g., quartz or quartzite) with dimensions not greater than 6 mm and not less than 2 mm. The calcium carbonate content shall not exceed 10%.

2.3.4 Sand topping for Lateral & Collector drains.

- Hydraulic conductivity: >300 mm / hour.
- Particle size distribution: Medium/Fine sand consistent with the grading curve developed by the S.T.R.I. for sand for soil modification (see figure below).



- Calcium Carbonate content: <10%.
- pH: 5.5 - 7.0.

2.3.5 Inspection chambers

- Chambers shall be constructed of brick, concrete, or plastic (conforming to BS 7158).
- They shall be large enough to permit access for cleaning, jetting, and rodding.
- A sump of at least 250 mm below the lowest pipe shall be incorporated to function as a silt trap.
- The top of the chamber shall be set 10 mm below finished ground level.
- The cover loading (to BS EN 124) for the inspection chambers on the playing surface shall be Class C250. The covers shall be lockable / secured to prevent unwanted access.

2.4 Installation

- 2.4.1 Pipe laying.
 - Pipes shall be laid to the correct depth stipulated above and to an even grade.
 - Upper ends of drain runs shall be capped to prevent ingress of soil or animals.
 - There shall be no damage to the pipes.
- 2.4.2 Junctions, connections, end caps, inspections chambers and headwalls
 - Proprietary fittings shall be used to join or connect drainage pipes.
 - Inspection chambers to be positioned as shown on the construction drawings.
 - Where required, drains shall be let into the inspection chambers and caulked with a sand/cement mix concrete (BS 5328: 1981,85) or be fixed with a proprietary collar to pre-welded stub pipes to make good the pipe/wall seal.
 - The drainage scheme shall discharge into the site-wide drainage and attenuation system located in the North-Western corner of the site.
- 2.4.3 Backfilling
 - The granular backfill shall be placed immediately and carefully over the pipe to within 150 mm of finished surface level using specialist gravel carts fitted with LGP tyres or tracks
 - The sand topping shall be placed over the granular fill to finished surface level using specialist hoppers fitted with LGP tyres or tracks. The sand shall be simultaneously firmed using a compaction wheel.
 - The 150 mm dia. Main Drain shall be backfilled with spoil derived from the drainage trench.
- 2.4.4 Topping-up drains
 - Allow to top-up the drain lines should settlement occur on one occasion during the maintenance period.

3 Secondary drainage [Sand Slits; GKB Drainmaster / Koro TopDrain]

NB To be installed into the seedbed prior to rootzone carpet installation (if used) assuming ground conditions are suitable.

3.1 Materials Specification

- 3.1.1 Sand Backfill.
 - Hydraulic conductivity: >300 mm / hour.
 - Particle size distribution: Medium/Fine sand consistent with the grading curve developed by the S.T.R.I. for sand for soil modification (Please refer to Section 4.3; Item 2.3.4 for further details).
 - Calcium Carbonate content: <10%.
 - pH: 5.5 – 7.0.

3.2 Installation

- 3.2.1 Sand Slits
 - Sand Slits shall be installed using a GKB Drainmaster (or equivalent) comprising 40 mm wide x 200 mm deep sand-filled trenches at 500 mm centres. The sand slits shall make a direct connection with the permeable backfill above the lateral drains. Soil arising's shall be retained on-site in the landscape areas.

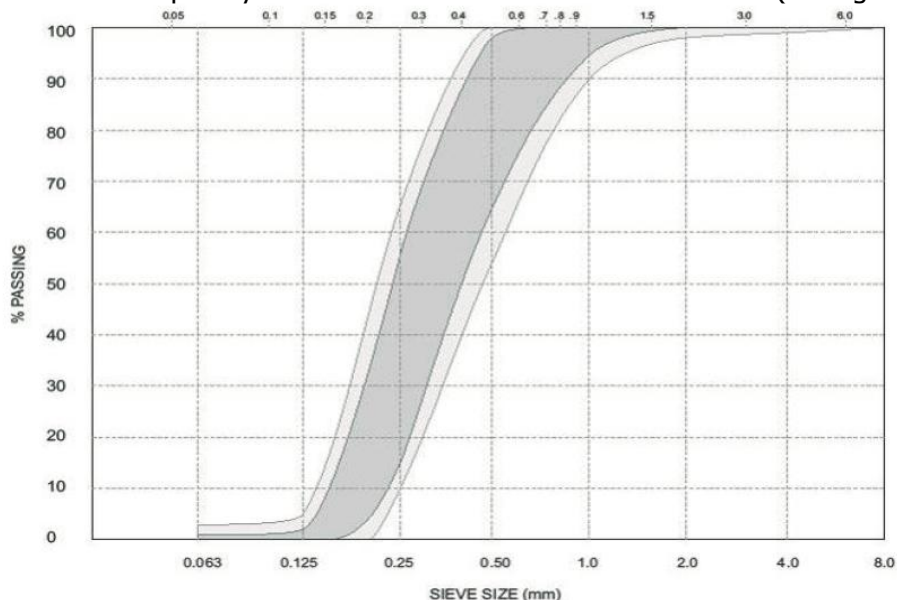
3.4 Final Cultivations & Seeding [Sports Field]

1 Cultivations and Seeding

1.1 Materials specification

1.1.1 Sand for Soil Modification (Medium/Fine washed sand)

- Hydraulic conductivity: >300 mm / hour.
- Particle size distribution: Medium/Fine sand consistent with the grading curve developed by the S.T.R.I. for sand for soil modification (see figure below).



- Calcium Carbonate content: <10%.
- pH: 5.5 - 7.0.

1.1.2 Rootzone Carpet (80/20 Sand/Soil Mix) – IF REQUIRED

- Approximately 80/20 pre-blended Sand/Soil mix.
- Hydraulic conductivity: >150 mm / hour.
- Total porosity: 35 – 55%.
- Air-filled porosity @ 30 cm tension: 15 – 30%.
- Capillary porosity @ 30 cm tension: 15 – 25%.
- Calcium Carbonate content: <5%.
- pH: 5.5 – 7.0.
- Organic matter content: 1.0 – 3%.
- Homogeneity: Uniform.

1.1.3 Fertiliser

- 10-15-10 Pre-seeding fertiliser.

1.1.4 Grass seed

- A suitable dwarf perennial ryegrass dominated seed mix (e.g., DLF PM81 or equivalent approved). The seed mix shall be made up from at least three varieties from the top 10 varieties as listed in the latest Turfgrass Seed Book. The seed shall have a certified germination of not less than 80% and a certified purity of not less than 98%. Total weight of other species shall be no more than 1.5% and, within this, the total weight of a single other species should not exceed 0.5%.

1.2 Installation

- 1.2.1 Following the primary drainage works, the development area shall be sub-soiled between (but not over) the drains using an agricultural subsoiler to alleviate compaction between the drain lines. The depth of subsoil cultivation will be approx. 450 mm, but this is subject to tine spacing.
- 1.2.2 Following subsoiling, the development area shall be cultivated to restore surface level uniformity using tractors fitted with LGP tyres and a range of implements. The depth of cultivation will be kept to a minimum to avoid excessive disruption to the drainage scheme (i.e., no deeper than 75 mm).
- 1.2.3 To control any remaining oversized stones >15 mm in size that may occur in the upper 200 mm depth of the topsoil the development area shall be stone buried using a Blecavator (or similar). To be undertaken between the drain lines only. Roll the surface following this operation to re-firm prior to sand spreading.
- 1.2.4 Prior to secondary drainage installation, supply, spread and incorporate previously specified sand to a firmed depth of **30 mm** across the development area using a tractor drawn sand spreader. The sand shall be mixed into the immediate surface of the topsoil to a depth of approximately 50 mm using a tractor and power harrow.
- 1.2.5 If found to be required to mitigate stones and following the installation of secondary drainage, supply and spread a **50 mm** firmed depth of previously specified rootzone across the pitch area.
- 1.2.6 Lightly cultivate, gate grade or rotorake to produce a suitable seedbed achieving the previously specified levels tolerances, i.e., no more than 10 mm deviation beneath a 2 m straight edge. **N.B.** Minimise cultivation depth to avoid excessive soil mixing over the drainage channels.
- 1.2.7 Supply and spread previously specified pre-seeding fertiliser at the application rate of 35 g/m² using a calibrated spinning disc fertiliser spreader. Fertiliser to be worked-in during cultivations.
- 1.2.8 Supply and drill specified seed using a Blec Turfmaker seed drill (or equivalent) at the seeding rate of 35 g/m². Seed to be drilled in three directions to ensure uniform coverage.
- 1.2.9 Following seeding, the surface shall be rolled to consolidate the seedbed and ensure good seed/soil contact.

3.5 General Reinstatement

1 General Reinstatement

- 1.1 All damage caused by plant and machinery shall be made good by:
 - 1.1.1 Cultivating the affected area to below the depth of damage using a rotovator or similar equipment. Care must be taken with the timing of this operation to avoid smearing or causing further damage to soil structure. Any weeds, foreign material and stones over 25 mm gauge must be removed and disposed of on-site as directed by the Contract Administrator.
 - 1.1.2 A seedbed should then be prepared using a power harrow.
 - 1.1.3 Pre-seeding fertiliser (10:15:10) to be applied @ 35 g/m² over the reinstated area a minimum of 5 days prior to seeding.
 - 1.1.4 A suitable seed mixture suitable for sportsfield use comprising perennial ryegrass should be drilled at the rate of 35 g/m² in at least three directions. The seed mix shall be made up from at least three varieties from the top ten varieties as listed in the latest Turfgrass Seed Book. The seed shall have a certified germination of not less than 80% and a certified purity of not less than 98%. Total weight of other species shall be no more than 1.5% and, within this, the total weight of a single other species should not exceed 0.5%.
 - 1.1.5 The finished levels for seeding shall, unless otherwise indicated on the drawings, be perfect to the surrounding contours and 25 mm above any adjacent hard surfaces.

3.6 12-Months Maintenance [From Seeding]

- 1 Mowing. Undertake the first three cuts with a rotary mower starting when the grass has reached a height of 60 mm. The first three cuts will maintain the grass at 50 mm. Check for stones; handpicking will be carried out, if necessary, before each cut. After the first three cuts, reduce mowing height to 30 mm using low ground pressure cylinder mowing equipment. During this period, the grass must never be allowed to exceed a height of 45 mm. Allow for 30 cuts in total.
- 2 Fertiliser. Supply and apply fertiliser as follows (precise formulation, timing of application and application rate will be dependent on sowing date and weather conditions during establishment period):
 - Aug 18-3-8 + 3% Mg controlled release fertiliser applied @ 35 g/m²
 - Oct 4-12-12 compound fertiliser applied @ 35 g/m²
 - Mar 20-10-10 compound fertiliser applied @ 35 g/m²
 - May 18-3-8 + 3%Mg controlled release fertiliser applied @ 35 g/m²

Fertiliser shall be applied with appropriate spreading equipment that ensures a uniform distribution.
- 3 Weed Control. Apply a selective herbicide at least six months after seeding, if found to be required, to control the weeds present. **NB.** Do not apply herbicide during periods of potential turf stress, i.e., if the weather is hot and dry or if frosts are forecast. Apply herbicide strictly according to the Manufacturer's label recommendations and following an appropriate COSHH assessment.
- 4 Disease Control. Allow for the application of a contact fungicide if found to be required. Allow for 1 Nr. application.
- 5 Overseeding. Overseed at the rate of 25 g/m² during the renovations period in April following the original construction. Use the same seed mixture as that specified for the initial site establishment. Make at least two passes with seeding equipment designed to place the seed approximately 10 mm below the surface.
- 6 Sand Topdressing. Supply and spread 1 x 8 mm application of approved medium-fine sand during the renovations period in April the following year after construction. The sand shall be of the same specification as that used for soil amelioration. The sand shall be worked into the surface using multiple passes with brushes or drag mats.
- 7 Compaction Alleviation. Verti-drain the development area on two occasions, e.g., Apr and August. Use 25 mm diameter solid tines at 150 mm centres working to a depth of approximately 250 mm below the surface set to provide moderate heave. Verti-draining shall only be conducted under suitable ground conditions, i.e., contain sufficient water content to allow penetration of the tines to full working depth but not too soft to create wheel marks.

3.7 Performance Testing at Completion

- 1 Prior to handover, the pitches shall be tested by an approved independent test house to confirm compliance with the Performance Quality Standards detailed in this specification. The testing should be completed towards the end of the 12-month maintenance period once the grass sward has established. The report shall be submitted to the Employer prior to handover.

4. CONTACT DETAILS

Confidentiality

This report and associated concept drawings is confidential and is only for the use of ALP and associated project team members. No copies of this report are to be made and information contained herein should not be communicated to any third party without the specific consent in writing of White Horse Contractors Limited.

Dr. James P. Welsh
Technical Director

White Horse Contractors Limited
Stephen's Yard,
Enborne,
Newbury
Berkshire
RG20 0HA

Tel: 01865 736272
Mob: 07748 847558
Email: jwelsh@whitehorsecontractors.co.uk
Web: www.whitehorsecontractors.co.uk